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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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CHILDREN PAY PENALTY FOR ANTI-VACCINATION PROPAGANDA.

As ever in the history of smallpox, the case-incidence of new outbreaks is greatest where the influence of anti-vaccination propaganda is most effective. The unvaccinated children are the chief sufferers. This fact is shown on a gigantic scale in the recent experience of the Philippine Islands.*

Students of the prevailing worldwide menace of smallpox have seen many statements from anti-vaccination propagandists that the sad experience of the Philippines in 1918 and 1919 was a repudiation of the principles of modern public health measures for smallpox suppression. These statements are mere allegations that 50,000 smallpox deaths occurred in the face of systematic, persistent vaccination. The real truth is that the practice of effective vaccination had been exceedingly lax since the general campaign of 1909 or thereabouts and that most of the 50,000 deaths occurred among the children and other elements of the population unprotected by the indifferent pursuit of vaccination in recent years in the Islands. The age statistics given by Drs. Heiser and Leach for Pangasinan and for Manila show a predominance of both cases and deaths among the unvaccinated. A careful review of these facts will make it possible for American health officers to refute the diligently circulated misstatements of the anti-vaccinationists.

Some information on the age-incidence of smallpox cases in our own population has been furnished this office by Dr. W. M. Dickie, Secretary of the California State Department of Health. These facts bear out from American experience the conclusions of Drs. Heiser

*Heiser, Victor G. and Leach, Charles N. "Vaccination in the Philippines Still Effective." *Journal of the American Medical Association*, July 1, 1922, p. 40.

and Leach. That which was expected in California has happened. A marked increase in the concentration of smallpox upon the ages which have the highest proportion of unprotected persons occurred between 1916 and 1921. In 1916, 36.6 per cent. of the cases were of persons below 15 years of age; in 1921, this proportion had increased to 45.8 per cent.! As the number of unprotected children of school age increases through the opposition of anti-vaccinationists to compulsory vaccination as a condition to school attendance, the number of smallpox cases among the young also increases. An example of the fallacy of the anti-vaccination appeals to parents may be obtained by paralleling what the anti-vaccinationists say, with what Drs. Heiser, Leach and Dickie set forth from official records. The data contributed by Dr. Dickie are shown in the following table:

Age Distribution of Smallpox Cases in California, 1916 to 1921*

Ages	Number of Cases					Per Cent. of Total				
	1916	1918	1919	1920	1921	1916	1918	1919	1920	1921
All Ages..	205	654	1,560	4,218	5,278	100.0	100.0	100.0	100.0	100.0
Under 5..	25	41	144	341	392	12.2	6.3	9.2	8.1	7.4
5 to 9....	34	104	281	722	966	16.6	15.9	18.0	17.1	18.3
10 to 14....	16	87	250	757	1060	7.8	13.3	16.0	17.9	20.1
15 to 19....	16	78	178	408	628	7.8	11.9	11.4	9.7	11.9
20 to 24....	23	49	118	292	354	11.2	7.5	7.6	6.9	6.7
25 to 34....	41	110	189	570	607	20.0	16.8	12.1	13.5	11.5
35 to 44....	30	117	222	602	685	14.6	17.9	14.2	14.3	13.0
45 to 64 ..	16	65	159	468	516	7.8	9.9	10.2	11.1	9.8
65 and over.	4	3	19	58	70	2.0	.5	1.2	1.4	1.3

*Data for 1917 not available.

MORTALITY RECORD OF THE FIRST SIX MONTHS OF 1922.

The mortality experience of the Industrial Department of the Metropolitan Life Insurance Company for the first six months of 1922 has been better than that for any corresponding six months on record with the single exception of 1921. This result has been obtained in the presence of the influenza epidemic early in the year, which, for a time, took on serious proportions. The death rate for the first half of the year was slightly under 10 per 1,000, which is only a little more than six per cent. higher than that prevailing in the record-breaking period of 1921.

Death Rates From Infectious Diseases Have Declined.

The most encouraging fact in the record of this year to date is the very low mortality from diphtheria, from tuberculosis and most of the other infectious diseases. There was a decline of 23 per cent. in the death rate from diphtheria, the figure for the first six months being 19 deaths per 100,000, as compared with 24 last year. This improvement probably results from the operation of two factors: the first is the wide extension of Schick testing in American cities, the use of toxin-antitoxin, and the consequent immunization of children. The best example has been set by the New York City Department of Health, but other cities have not been slow to take up the work. The second influence may be the normal drop in mortality from a disease which is known to rise and fall in definite cycles. It would be helpful if local departments of health that have carried out extensive Schick testing and the immunization of children, and which supplied antitoxin to physicians on a larger scale than previously, would analyze their experience in the last six months to determine how effective the newly developed procedures in the control of diphtheria really are.

The death rate from tuberculosis was 13 per cent. lower than for the corresponding period of 1921, which was already a very low rate. The continued decline is very gratifying in view of the difficult economic conditions that have prevailed during the last eighteen months. The fact is that there is as yet no significant let-up in the capacity of mortality from this disease to fall. There is, therefore, little doubt that the anti-tuberculosis agencies of the country will continue to make inroads on the mortality rate of this disease regardless of the periodic changes in the business and employment cycle. There is evidently some influence at work on the death rate from tuberculosis which is independent of immediate economic conditions.

Declines were recorded during this period for typhoid fever, scarlet fever and whooping cough.

Mortality from puerperal septicemia was much lower in 1922 than in 1921. During the first six months of this year, the death rate was 8.1 per 100,000, as compared with 10.3 for the corresponding period of 1921.

The homicide death rate shows some improvement both among white and colored lives. For accidental drowning, a lower death rate was recorded for white persons, and a slightly higher death rate for colored persons.

Diseases and Conditions Showing Increased Mortality in 1922.

The diseases and conditions with increased mortality rates in 1922 were influenza and pneumonia, organic diseases of the heart, cerebral hemorrhage and apoplexy, chronic nephritis, measles, automobile accidents and suicides.

Influenza was about three times more prevalent as a cause of death this year than during 1921, the rates being 36.8 and 12.6, respectively. The pneumonia rate was higher, especially at the beginning of the year; but in recent weeks, it has been lower than in the corresponding weeks of last year. This suggests that, barring epidemic explosions of influenza, we may have for the whole year 1922 a death rate for acute respiratory disease which will compare very well with the record of 1921, and that record was certainly the best this Company ever experienced. For the whole Industrial Department of this Company, the pneumonia death rate was only 105.4 per 100,000 for the first six months of 1922, as compared with 92.2 per 100,000 for the same period in 1921. The excess of 13 points in the pneumonia death rate of 1922 is more than accounted for by the influence of the sharp influenza outbreak during the late winter.

The mortality from organic diseases of the heart was higher during the first six months of 1922 than in the corresponding period of any year since 1918. Mortality from this cause of death in 1922 was 20.2 points per 100,000 in excess of what was expected on the basis of the trend of mortality during the corresponding periods of each year for the past eight years. At the present time, it is impossible to say what factors have brought about this sharp rise in heart disease mortality during 1922. The influenza epidemic during the early part of the year, and the effect of adverse economic conditions during the past eighteen months, may have been responsible in some measure. Until further information is available, however, no satisfactory explanation of this phenomenon can be offered. The increase in the death rate affects both white and colored persons. This disease has now far outdistanced tuberculosis as the leading cause of death among Industrial policy-holders.

Another regrettable fact in the record of 1921 is the continued increase in the death rate from automobile accidents. During the first six months of this year, we recorded a death rate of 10.6 per 100,000, as compared with 10.5 per 100,000, during the corresponding period of 1921.

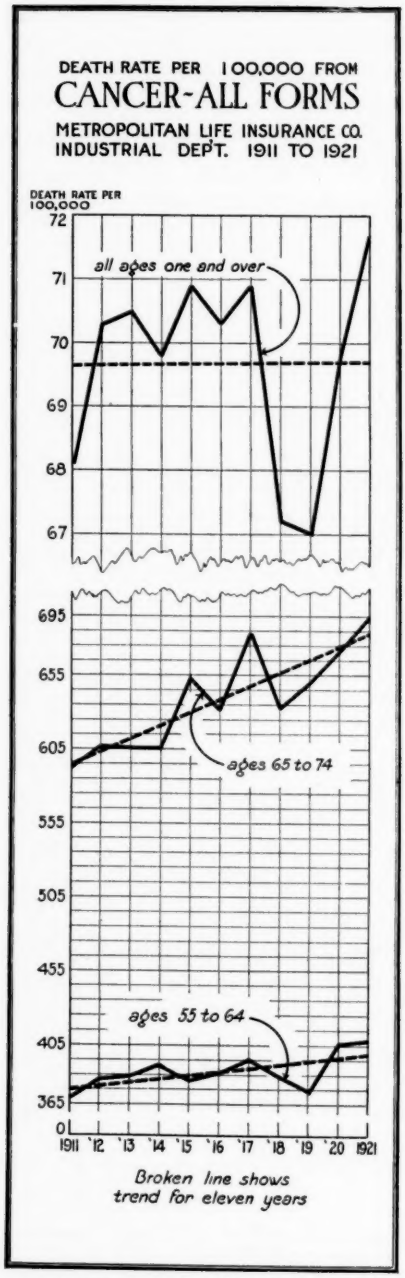
The number of deaths from alcoholism (acute and chronic) during the six months just ended is 133, which is eleven more than occurred in the whole year 1921.

Death Rates per 100,000 Persons Exposed, First Six Months of 1920, 1921 and 1922, Compared by Color for Principal Causes of Death. Industrial Department, Metropolitan Life Insurance Company, Premium Paying Business.

Cause of Death	Death Rates per 100,000 Persons Exposed					
	White			Colored		
	Jan.-June 1922	Jan.-June 1921	Jan.-June 1920	Jan.-June 1922	Jan.-June 1921	Jan.-June 1920
All Causes of Death	923.0	872.9	1115.0	1489.5	1396.2	1744.9
Typhoid fever	3.2	3.8	4.3	6.3	6.9	8.0
Measles	6.4	5.4	14.7	2.0	2.6	5.6
Scarlet fever	7.1	10.3	8.1	.6	3.6	.5
Whooping cough	2.7	4.7	7.9	3.5	7.8	9.7
Diphtheria	19.9	26.4	25.1	8.1	6.2	6.3
Influenza	32.7	11.0	96.0	68.1	24.3	149.5
Meningococcus meningitis	.7	1.1	1.2	.6	1.0	1.6
Tuberculosis—all forms	108.5	110.0	136.6	260.1	284.6	319.3
Tuberculosis of respir. syst.	98.2	98.9	123.2	238.7	259.2	292.9
Tuberculosis of meninges, etc.	4.7	5.6	6.7	5.4	6.4	6.8
Other forms of tuberculosis	5.6	5.5	6.8	16.0	19.0	19.6
Cerebral hemorrhage, apoplexy	65.8	60.6	64.6	101.2	92.1	93.8
Organic diseases of the heart	138.5	119.5	130.4	206.9	178.0	192.6
Total respiratory diseases	114.1	102.1	186.9	182.9	160.4	298.5
Bronchitis	7.1	6.6	11.7	12.4	12.7	14.6
Bronchopneumonia	35.8	30.9	54.8	44.4	39.9	63.2
Pneumonia-lobar & undefined	62.7	55.6	107.5	113.4	95.1	205.0
Other dis. of respiratory syst.	8.6	8.9	12.9	12.7	12.7	15.7
Diarrhea and enteritis	7.8	10.7	10.7	11.7	11.0	10.5
Under 2 years	3.6	4.0	4.7	3.0	2.4	3.6
2 years and over	4.2	6.7	6.1	8.7	8.6	6.9
Acute nephritis	5.6	5.5	6.0	18.1	16.8	21.2
Chronic nephritis	70.6	67.6	75.5	125.4	110.4	118.7
Total puerperal state	20.6	21.2	26.1	27.3	29.8	34.2
Puerperal septicemia	7.7	10.0	8.3	11.1	13.2	13.7
Puerperal albuminuria and convulsions	5.1	4.6	4.7	6.7	7.4	7.1
Other dis. of puerperal state	7.9	6.7	13.1	9.6	9.1	13.4
Total external causes*	63.7	63.4	63.0	89.3	94.7	87.0
Suicides	8.3	7.9	6.2	5.0	5.4	4.1
Homicides	3.5	3.6	3.1	24.7	26.7	20.2
Accidental and unspecified violence**	51.8	51.8	53.1	59.6	62.5	62.3
Accidental drowning	5.4	6.1	4.2	6.9	6.2	5.3
Automobile accidents	11.1	10.8	8.1	6.2	8.3	4.4
War deaths	.1	.2	.7	†	.1	.4
All other and ill-defined causes of death	255.1	249.5	257.6	377.2	366.1	387.8

*Includes "War deaths." **Excludes "War deaths." †No deaths.

THE RISING CANCER DEATH RATE.



The cancer death rate of the year 1921 was higher than that for any year since 1911, indicating that no progress is really being made in checking the mortality from this disease.

Among Metropolitan Industrial policy-holders, during the eleven years 1911 to 1921 the cancer death rate has shown first, a horizontal tendency between 1911 and 1917, with no important variation from a figure around 70 per 100,000; second, a slight drop in the two years 1918 and 1919 to about 67 per 100,000 and third, a rise in 1920 and 1921, and which is still under way in the experience of the first six months of 1922. The lower death rates of 1918 and 1919 have been ascribed to the possible effect of the influenza epidemic upon the cancerous population; it has been said that perhaps many persons died from influenza, who would have died from cancer if the epidemic had not occurred.* But unfortunately for this explanation, no significant increase in total mortality was registered at those ages which contain the cancerous population. Most of the improvement in cancer mortality during 1918 and 1919 was observed at the ages where influenza was least destructive and where

*Little, S. W. *Boston Medical and Surgical Journal*, December 23, 1920, P. 746

cancer death rates are usually highest. Whatever the explanation for the lower mortality in 1918 and 1919, we are facing at the present time a rising cancer death rate. In order that the facts for the decade may be available to cancer students, the data for each year from 1911 to 1921 are shown, both for all ages combined and for significant age groups, in the experience of the Industrial Department of this Company.

Death Rates per 100,000 Exposed. Cancer—all Forms, by Principal Age Divisions.

Metropolitan Life Insurance Company, Industrial Department 1911 to 1921.

Year	All Ages One & Over	Age Periods						
		1–24	25–34	35–44	45–54	55–64	65–74	75 and over
1911....	68.0	2.6	16.6	72.4	198.5	368.7	592.4	772.5
1912 ...	70.3	2.6	14.9	76.9	201.4	381.9	607.5	842.4
1913....	70.5	2.4	16.9	78.4	204.3	384.1	606.5	799.2
1914....	69.8	2.8	15.5	79.5	191.5	390.9.	605.6	843.1
1915....	70.9	2.4	16.6	76.8	192.6	380.8	652.9	828.0
1916....	70.3	2.6	14.2	72.9	203.6	386.4	631.7	811.1
1917....	70.9	3.0	17.8	78.4	208.4	395.4	683.9	893.6
1918....	67.2	2.4	16.7	76.2	196.5	384.2	632.3	919.0
1919....	67.0	3.0	17.7	72.7	192.8	373.9	649.1	974.5
1920....	69.8	2.3	17.1	74.3	192.7	406.0	670.8	969.3
1921....	71.7	3.0	14.5	73.2	194.0	408.3	694.2	969.2

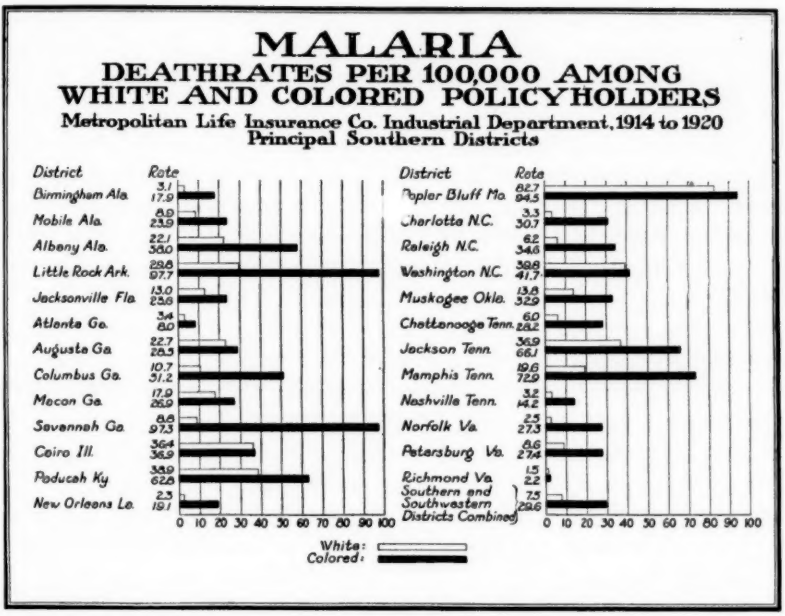
It will be seen that the upward sweep of the cancer death rate affects primarily the ages beyond 55 years. Careful analysis shows that there is an underlying downward tendency, slight indeed, but quite definite, at the ages below 45 years. This *may* have followed because the cancer control message has been favorably received and understood by persons at the younger ages. But the bulk of the loss of life from cancer, the toll of intense suffering and prolonged incapacity, occurs at the advanced ages. The task of the cancer prevention movement seems to be to reach that part of the population in advanced life. This point should be borne in mind in discussions of cancer mortality during the campaign of public education planned for the week beginning November 12, 1922, by the American Society for the Control of Cancer. Through its 655 state and local committees, the Society will conduct a "Cancer Week," and will

bring to public attention the facts on cancer prevalence and on measures for checking the rising death rates. There is hardly any life conservation measure of such intrinsic merit as the effort of this group to hold down the annual increment in the cancer death rate and if possible to achieve a substantial reduction. Information regarding the proposed "Cancer Week" may be obtained from Mr. Frank J. Osborne, Executive Secretary, American Society for the Control of Cancer, 370 Seventh Avenue, New York City.

POSSIBLE INCREASE IN MALARIA INCIDENCE THIS YEAR.

Malaria mortality seems to be slightly on the increase. In 1921, the death rate of the Industrial Department of this Company rose slightly; among negro policy-holders the death rate increased decidedly. This latter fact suggests the effect of relaxation in malaria control measures in the South, following the cessation of Federal support for practical engineering procedures in and around the former camp and cantonment sites. The possibility of an increase this year in malaria incidence is not confined wholly to Southern and Southwestern States. The Municipal Department of Health of Baltimore has sent out warnings of an increase in malaria in the rural districts of Maryland. This increase seems to have followed the diminished use of quinine in the sterilization of cases. It is possible that other areas may have been affected likewise, although there are no case reports available at the present time to support this view. It would be well for State Departments of Health to inquire into the incidence of malaria by correspondence with physicians in rural areas favorable to the propagation of the *Anopheles* mosquito. Travelers into Southern and Southwestern rural areas this summer should be particularly careful in securing prompt medical attention for any malarial condition that may develop as a result of *Anopheles*-conveyed infection.

Some facts on the comparative incidence of malaria mortality in the period 1914 to 1920 among Metropolitan Industrial policy-holders are shown in the graphic chart on page 9.


MALARIA
DEATHRATES PER 100,000 AMONG WHITE AND COLORED POLICYHOLDERS
Metropolitan Life Insurance Co. Industrial Department, 1914 to 1920
Principal Southern Districts
District
Rate
Birmingham Ala. 3.1 17.9
Mobile Ala. 8.0 23.9
Albany Ala. 22.1 34.0
Little Rock Ark. 28.8 97.7
Jacksonville Fla. 13.0 23.6
Atlanta Ga. 3.4 8.0
Augusta Ga. 22.7 28.5
Columbus Ga. 10.7 31.2
Macon Ga. 17.9 26.9
Savannah Ga. 8.8 97.3
Cairo Ill. 36.4 36.9
Paducah Ky. 38.9 62.8
New Orleans La. 2.3 19.1
Poplar Bluff Mo. 82.7 84.5
Charlotte N.C. 3.3 30.7
Raleigh N.C. 8.2 34.6
Washington N.C. 39.8 41.7
Muskogee Okla. 13.8 32.9
Chattanooga Tenn. 6.0 28.2
Jackson Tenn. 36.9 66.1
Memphis Tenn. 19.6 72.9
Nashville Tenn. 3.2 14.2
Norfolk Va. 2.5 27.3
Petersburg Va. 8.6 27.4
Richmond Va. 1.5 22.2
Southern and Southwestern Districts Combined 7.5 29.6
0 10 20 30 40 50 60 70 80 90 100
White:
Colored:

So far as the experience of this group of Industrial policy-holders indicates, the heaviest death rates were recorded in Little Rock, Ark.; Savannah, Ga.; Paducah, Ky.; Poplar Bluff, Mo. and in Jackson and Memphis, Tenn. It should be recalled that the data for policy-holders in these Southern and Southwestern cities include the deaths of residents in the environs of these cities. The territory of the Metropolitan's "district" centered in a particular city covers in many instances the areas in the same county outside the city limits, and for some districts the field of operations lies in several adjoining counties, with the urban populations included.

HEALTH RECORD OF JUNE, 1922.

The deathrate of Metropolitan Industrial policy-holders is beginning to show not only a marked downward seasonal swing, but gives promise of bettering the record for the summer period last year. In June, 1922 the total deathrate was 9.0 per 1,000, a decline of 6.5 per cent. from the May, 1922 figure and of 4.4 per cent. from the rate of June, 1921. The favorable total record of the past month, as compared with, June, 1921, was contributed chiefly from decidedly lower mortality rates for scarlet fever, whooping cough, diphtheria and homicides, and from slightly lower rates for tuberculosis, typhoid

fever, cancer, penumonia, diarrhea and enteritis, Bright's disease, diseases of the puerperal state and automobile accidents. Further comment on the mortality of the first six months of 1922 will be found in the second article in the present BULLETIN.

During June of this year, the deathrate of the general population of principal American cities was 11.1 per 1,000, a decline of 12 per cent. from the figure for the preceding month, but an increase of about one per cent. over the rate of June, 1921. Reports of the notifiable diseases for principal areas show a decreased prevalence of scarlet fever, diphtheria, smallpox, influenza and lethargic encephalitis. The reported case incidence of whooping cough and typhoid fever was higher in June than in May.

The number of recorded cases of smallpox declined greatly during the month. Bridgeport, Conn. still shows the incidence of new cases. In that city, the number of cases reported during the first six months of this year exceeded the total of any single year since 1900. Most of the smallpox in Connecticut this year was included within the area of the triangle limited by the cities or towns of Bethel, Bridgeport and Westport.

Fifteen smallpox cases were reported from Niagara Falls during the first week in June. On June 22d, a section of Philadelphia was quarantined because of the presence of the disease, and more than 200 persons were vaccinated.

New York was the only state that showed an appreciable increase in scarlet fever. The disease was reported to be spreading widely in Maryland. In this state one difficulty was the lack of medical attention for the cases in some of the eastern towns.

Earnest efforts are being made in North Dakota to improve the state public health administration. It is proposed to replace the present three-man board of public health by a seven-member board, which shall appoint a fulltime health officer. In addition, it is proposed to establish four divisions in the State Health Department, each with a full-time trained man in charge. These divisions are: (1) vital statistics, (2) preventable diseases, (3) child hygiene and public health nursing and (4) sanitary engineering.

The table below gives the facts of mortality from principal diseases and conditions among Metropolitan Industrial policy-holders during the months of May and June, 1922, in May, 1921, and for the whole year 1921:

METROPOLITAN LIFE INSURANCE COMPANY.

Death Rates per 100,000 for Principal Causes, Premium-paying Business in Industrial Department.

(Annual Basis)

MONTHS OF MAY AND JUNE, 1922 AND OF JUNE, 1921.

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED			
	June, 1922	May, 1922	June, 1921*	Year 1921*
TOTAL—ALL CAUSES	904.7	967.7	945.9	870.6
Typhoid fever	5.2	3.7	5.4	6.7
Measles	7.6	8.8	3.2	3.2
Scarlet fever	2.4	4.6	8.2	7.0
Whooping cough	2.1	2.3	4.0	3.9
Diphtheria	11.1	12.6	20.3	23.8
Influenza	10.1	20.9	4.4	8.7
Tuberculosis (all forms)	133.7	131.3	137.7	117.4
Tuberculosis of resp'y system	119.5	119.3	125.1	105.6
Cancer	72.5	76.1	79.4	71.7
Cerebral hemorrhage	62.8	62.6	60.4	62.1
Organic diseases of heart	126.9	141.4	123.5	117.4
Pneumonia (all forms)	52.1	82.5	56.5	67.8
Other respiratory diseases	11.4	17.6	14.3	14.1
Diarrhea and enteritis	11.9	7.8	13.9	14.2
Bright's disease (chronic nephritis)	73.4	72.7	74.4	68.0
Puerperal state	20.6	18.5	21.5	19.8
Suicides	8.6	8.3	8.0	7.6
Homicides	5.7	6.1	7.8	6.7
Other external causes (excluding suicides and homicides)	63.3	55.2	68.7	57.6
Traumatism by automobile	13.7	12.4	14.3	12.2
All other causes	223.3	234.7	234.3	192.9

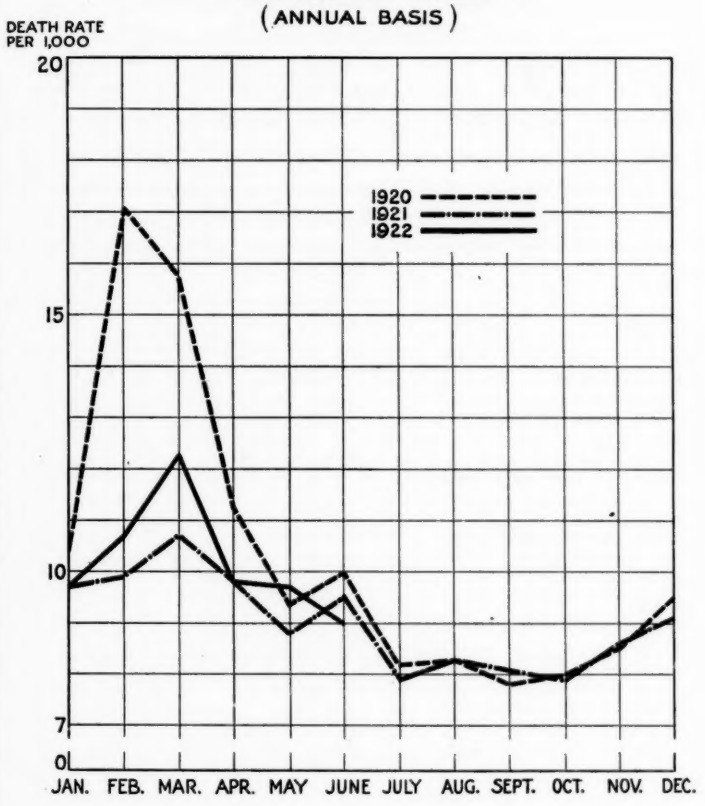
*Provisional figures for 1921 given in preceding numbers of the 1922 *Bulletins* have been revised on the basis of final tabulations of 1921 data.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
Metropolitan Life Insurance Company,
1 Madison Avenue, New York City

DEATHRATE *per* 1,000 IN SPECIFIED MONTHS OF 1920, 1921, 1922

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	1920	1921	1922
JAN.	10.4	9.7	9.7
FEB.	17.1	9.9	10.7
MAR.	15.8	10.7	12.3
APR.	11.3	9.8	9.8
MAY	9.4	8.8	9.7
JUNE	10.0	9.5	9.0

	1920	1921	1922
JULY	8.2	7.9	
AUG.	8.3	8.3	
SEPT.	7.8	8.1	
OCT.	8.0	7.9	
NOV.	8.5	8.6	
DEC.	9.5	9.1	

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